# TECHNICAL NOTES

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## DATA SOURCES, COMPLETENESS, AND IMPUTATIONS

### Sources of Data

Louisiana law requires that certificates of vital events be submitted to the Department of Health and Hospitals, Office of Public Health, Vital Records Registry Program. The Vital Records Registry Program is charged with the responsibility of recording and preserving the submitted documents. The Office of Public Health's State Center for Health Statistics is assigned the tasks of tabulating, summarizing, analyzing, and disseminating statistical information recorded on vital certificates.

The statistics presented in this report were obtained primarily from certificates registered with the Vital Records Registry Program. Records of vital events occurring outside the State to residents of Louisiana were obtained from transcripts of certificates made available through a nationwide system of interchange among all states and territories. National-level data were extracted from publications of the National Center for Health Statistics.

Unless otherwise noted, Louisiana data were summarized by the State Center for Health Statistics. United States data were taken from publications of the National Center for Health Statistics. Data sources other than the State Center for Health Statistics are footnoted wherever they appear in this report.

### Completeness of Data

**Births:** Matching of infant death certificates with the corresponding birth certificates indicates that birth registration in Louisiana is approximately 97 percent complete. This figure is considered to be an underestimate of completed certificates, since it is believed that some certificates that actually have been filed were not located during the matching process (due to differences in key variables on the birth and death certificates). Under-registration of births for infants who die shortly after they are born is also probable.

**Deaths:** Death registration is considered to be close to 100 percent complete, as it is necessary to file a death certificate before a burial permit is issued in Louisiana. However, it is recognized that some under-registration does occur for infants dying shortly after birth.

**Spontaneous Fetal Deaths:** The degree of registration completeness for stillbirths (spontaneous fetal deaths) is not known, but some under-registration is likely, especially for stillbirths near 20 weeks gestation.

**Induced Termination of Pregnancy:** The Vital Records Registry receives certificates on most abortions, but the information recorded on the filed certificates often is incomplete. In addition, although some states notify Louisiana of abortions obtained by Louisiana residents, Louisiana cannot reciprocate. A federal court decision prohibits the collection of residency information on women who terminate pregnancies within the state. Hence, no accurate counts of the number of terminations among Louisiana residents are available.

**Marriage:** Marriage certificates are filed with the Vital Records Registry for at least 95 percent of marriages occurring in the state annually.

**Divorce:** Louisiana divorce statistics are incomplete. Each year, approximately 25% of the parishes in the state fail to report divorce information to the Vital Records Registry. The divorce tabulations reported by the State Center for Health Statistics included reflect counts made by the Clerks of Courts as well as data derived from actual certificates received in the central office. Because of underreporting, Louisiana is excluded from the national divorce registration system.

**Missing Data**

In the *State Summary* sections of this report, data presented in tables and figures exclude records that are missing the information being described. In the Parish and Region Tables, however, data have been imputed when the following data items are missing:

- "Sex" is allocated male or female depending on whether the last digit of the record identification number is even or odd, except in the case of death where the underlying cause is sex-specific.
- "Race" is allocated depending on the last digit of the record identification number, giving a 70 percent chance for white and 30 percent chance for black.
- "Parish of Residence" is assumed to be "Parish of Occurrence" when residence parish is missing for live births or for infants dying under 1 year of age.

**Place of Residence vs. Place of Occurrence**

Vital events are classified by Place of Residence or by Place of Occurrence. Place of Residence is defined as the residence of the deceased for a death and as the residence of the mother for a birth or stillbirth. Place of Occurrence is defined as the geographic location where the event occurred. All tables refer to resident events except as noted.

**Cities Located in Two Parishes**

The following cities span parish boundaries:

- Bossier City – Primarily in Bossier Parish, partly in Caddo Parish.
- Shreveport – Primarily in Caddo Parish, partly in Bossier Parish.
- Eunice – Primarily in St. Landry Parish, partly in Acadia Parish.
- De Ridder – Primarily in Beauregard Parish, partly in Vernon Parish.

In this report, the city is reported as a single entity in the primary parish, and all events are allocated to that city. However, at the parish level the event is allocated to the actual parish. As an illustration, if a birth occurs in the portion of Shreveport which falls in Bossier Parish, it is reported in the Shreveport city count printed below Caddo Parish, but is not included in the Caddo Parish birth count. It is, instead, included in the Bossier Parish birth count. There is a possibility that this reallocation may show more events in a city than in the parish where the city is primarily located.

**Comparability of National and State Data**

Numbers and rates published in state tables by the National Center for Health Statistics (NCHS) may vary slightly from data published by Louisiana's State Center for Health Statistics due to differences in editing of the data.

## PARISH AND REGION TABLES

### Parish Tables

Tables included in the *Parish Tables* sections of this report contain data for Louisiana's 64 parishes and for the major cities within each parish. Data entries for major cities are listed below the parish entries. Cities are labeled with an asterisk (*) following the city name.

All crude rates included in the *Parish Tables* sections of this report have been calculated using intercensal population estimates provided by the Research Division, College of Administration and Business of the Louisiana Tech University. All age-adjusted rates included in the *Deaths* section of this report have been calculated using U.S. Census intercensal population estimates and the 2000 U.S. Standard population.

### Region Tables

Tables included in the *Region Tables* sections of this report contain data for Louisiana Office of Public Health's 9 administrative regions. These regions contain the following parishes:

***Region 1 (Metropolitan)***
Jefferson
Orleans
Plaquemines
St. Bernard

***Region 2 (Capitol)***
Ascension
East Baton Rouge
East Feliciana
Iberville
Pointe Coupee
West Baton Rouge
West Feliciana

***Region 3 (Teche)***
Assumption
Lafourche
St. Charles
St. James
St. John
St. Mary
Terrebonne

***Region 4 (Acadian)***
Acadia
Evangeline
Iberia
Lafayette
St. Landry
St. Martin
Vermilion

***Region 5 (Southwest)***
Allen
Beauregard
Calcasieu
Cameron
Jefferson Davis

***Region 6 (Central)***
Avoyelles
Catahoula
Concordia
Grant
Lasalle
Rapides
Vernon
Winn

***Region 7 (Northwest)***
Bienville
Bossier
Caddo
Claiborne
DeSoto
Natchitoches
Red River
Sabine
Webster

***Region 8 (Northeast)***
Caldwell
East Carroll
Franklin
Jackson
Lincoln
Madison
Morehouse
Ouachita
Richland
Tensas
Union
West Carroll

***Region 9 (Southeast)***
Livingston
St. Helena
St. Tammany
Tangipahoa
Washington

All regional crude rates included in the *Region Tables* sections of this report have been calculated using intercensal population estimates provided by the Research Division, College of Administration and Business of the Louisiana Tech University.

## POPULATION DATA

In the *State Summary* sections of this report, census data or intercensal population estimates provided by the United States Bureau of the Census for 1999 were used to calculate state-level rates for demographic subgroups (race, sex, age). Population files were downloaded from the U.S. Census population estimates website (www.census.gov). Age-adjusted death rates were calculated using the 2000 standard population.

In the *Parish Tables* and *Region Tables* sections of this report, crude rates for total populations at state, region, and parish levels were calculated using intercensal population estimates for 1999 provided by the Research Division, College of Administration and Business of Louisiana Tech University.

## BIRTH DATA

### Race

Prior to 1989, the race reported in birth data tables was the inferred race of the child. Beginning in 1989, birth data are presented by race of mother.

### Place of Residence

Place of Residence is defined as the residence of the mother for a birth or stillbirth.

**Adequate Prenatal Care** (modified Kessner Index definition):

1. Care must begin in the first trimester
2. The number of required prenatal visits varies with gestational age.
   - 17 weeks gestation requires 2 or more visits
   - 18-21 weeks gestation requires 3 or more visits
   - 22-25 weeks gestation requires 4 or more visits
   - 26-29 weeks gestation requires 5 or more visits
   - 30-31 weeks gestation requires 6 or more visits
   - 32-33 weeks gestation requires 7 or more visits
   - 34-35 weeks gestation requires 8 or more visits
   - 36 weeks gestation requires 9 or more visits

### Weight Equivalents

Equivalents of the grams weight in terms of pounds and ounces are shown:

| | |
|---|---|
| 453.6 grams = | 1 pound |
| Under 500 grams = | 1 pound 1 ounce or less |
| 500- 999 grams = | 1 pound 2 ounces - 2 pounds 3 ounces |
| 1000-1499 grams = | 2 pounds 4 ounces - 3 pounds 4 ounces |
| 1500-1999 grams = | 3 pounds 5 ounces - 4 pounds 6 ounce |
| 2000-2499 grams = | 4 pounds 7 ounces - 5 pounds 8 ounces |
| 2500-2999 grams = | 5 pounds 9 ounces - 6 pounds 9 ounces |
| 3000-3499 grams = | 6 pounds 10 ounces - 7 pounds 11 ounces |
| 3500-3999 grams = | 7 pounds 12 ounces - 8 pounds 13 ounces |
| 4000-4499 grams = | 8 pounds 14 ounces - 9 pounds 14 ounces |
| 4500-4999 grams = | 9 pounds 15 ounces - 11 pounds 0 ounces |
| 5000 grams or > = | 11 pounds 1 ounce or more |

**Gestational Age**

Gestational age is recorded on Louisiana's birth certificates by the physician attending the birth. Physicians use several different methods to estimate gestational age, including computing the interval between the first day of the mother's last normal menstrual period (LMP) and the date of birth, or determining a clinical estimate based on examination of the newborn. Because these methods have inherent limitations (for example, imperfect maternal recall of LMP), measurement of gestational age is imprecise. Without standardized methods of measurement, determination of gestational age will remain an issue, especially among at-risk pregnancies in which minimal or no prenatal ascertainments were made.

Louisiana Birth Certificates record both the "Date Last Normal Menses Began" and the "Clinical Estimate of Gestation." The "Clinical Estimate of Gestation" is used to determine gestational age in the *Live Births* section of this report.

**Birth Rates for Mothers Under Age 15 Years and Over Age 45 Years**

The following conventions are used when calculating rates for mothers younger than age 15 years or older than age 44 years:

- For age categories labeled "Under 15", the numerator is all live births to mothers under 15 years of age. The denominator is the female population aged 10 through 14 years.

- For age categories labeled "45 & Older", the numerator is all live births to mothers aged 45 years and older. The denominator is the female population aged 45 through 49 years.

## SPONTANEOUS FETAL DEATH DATA (STILLBIRTH)

### Definition of a Spontaneous Fetal Death

Louisiana defines a spontaneous fetal death (stillbirth) as a death to a fetus with gestational age of at least 20 weeks or birthweight of at least 350 grams.

The National Center for Health Statistics uses only gestational age (at least 20 weeks) to define a fetal death.

### Estimation of Gestational Age

Beginning with the *1997 Louisiana Vital Statistics Report*, gestational ages reported for the years 1995 and later are being derived by using the National Center for Health Statistics formula for calculation of gestational age. This formula calculates gestational age by combining information collected in the "Date Last Normal Menses Began" and "Clinical Estimate of Gestation" sections of the Louisiana Certificate of Fetal Death (Stillbirth).

Gestational ages reported for years prior to 1995 are being calculated by subtracting the "Date Last Normal Menses Began" from the "Date of Delivery," as recorded on the Fetal Death Certificate.

### Cause of Death Coding

Please refer to the **DEATH DATA** section of this chapter.

## DEATH DATA

### Place of Residence

Place of Residence is defined as the residence of the deceased for a death and as the residence of the mother for a stillbirth.

### Cause of Death Coding

*Classification System*: World Health Organization regulations specify that member nations classify cause of death in accordance with the current revision of the International Statistical Classification of Diseases, Injuries, and Causes of Death (ICD). The ICD has been revised approximately every ten years since 1900. The current revision, ICD-10, was implemented beginning with deaths occurring on January 1, 1999. For more information on the tenth revision, please visit the Centers for Disease Control and Prevention website at http://www.cdc.gov/nchs/about/major/dvs/icd10des.htm .

*Underlying Causes:* Prior to 1949, under the first five revisions of the International Classification, causes of death were coded on the basis of priority tables for multiple causes as set forth in *The Manual for Joint Causes of Death*. Under the sixth through the tenth (current) revisions, the cause of death coded for tabulating death data is the "underlying cause" as determined from information provided on the death certificate by the attending physician or coroner. Currently, when more than one cause of death exists, the causes are ordered according to the Automated Classification of Medical Entities (ACME) system. ACME is a computerized program that evaluates both the ICD-10 code characteristics and the components of the death history recorded on the certificate to determine the primary, or “underlying,” cause of death. The "underlying cause" may be defined as (a) the disease of injury that initiated the train of morbid events leading directly to death or (b) the circumstances, accident, or violence that produced the fatal injury.

*Comparability of Statistics from ICD-9 to ICD-10:* The decennial revisions of the International Classification of Diseases (ICD) have led to repeated breaks in the comparability of cause-of-death data. The introduction of the present concepts of classification in the sixth revision seriously affected the interpretation of mortality trends before and after 1949. ***Comparability ratios*** were subsequently computed by the United States to assist in the analysis of mortality trends by providing a measure of the degree of discontinuity. Following the recommendations of the International Conference for the Sixth Revision of the ICD, the United States used a dual coding method for constructing these comparability ratios after the introduction of each of the last five revisions, including ICD-10.

For a more detailed description of the role played by comparability ratios in interpreting the differences between ICD-9 and ICD-10, please see *Comparability of Cause of Death Between ICD-9 and ICD-10: Preliminary Estimates*, Vol. 49 No. 2 [DHHS Publication No. (PHS) 2001-1120 1-0355 (5/2001)], National Vital Statistics Reports, National Center for Health Statistics, Centers for Disease Control and Prevention, May 18, 2001. This publication can be downloaded from the National Center for Health Statistics website at http://www.cdc.gov/nchs/data/nvsr/nvsr49/nvsr49_02.pdf .

*Cause of Death Ranking:* Beginning with ICD-10 in 1999, cause of death rankings are based on the "List of 113 Selected Causes of Death" developed by the National Center for Health Statistics. This list was adapted from a basic list recommended by the World Health Organization for use with the Tenth Revision of the ICD. The categories "Major Cardiovascular Diseases" and "Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified" are not ranked. In addition, categories that begin with the words "Other" or "All Other" are not ranked. To determine the leading causes of death, the

remaining categories are ranked according to the number of deaths that occur in the calendar year. When a category that represents a subtotal is ranked (e.g."Tuberculosis"), its component parts (in this example, "Respiratory tuberculosis" and "Other tuberculosis") are not ranked.

*Codes Used for Cause of Death Ranking*: The groupings of ICD-10 codes used to rank causes of death in this report are those used by the National Center for Health Statistics. They are as follows:

| ICD-10 Codes | Cause of Death |
|---|---|
| A01-A02 | Salmonella infections |
| A03, A06 | Shigellosis and amebiasis |
| A16-A19 | Tuberculosis |
| A37 | Whooping cough |
| A38,A46 | Scarlet fever and erysipelas |
| A39 | Meningococcal infection |
| A40-A41 | Septicemia |
| A50-A53 | Syphilis |
| A80 | Acute Poliomyelitis |
| A83-A84,A85.2 | Arthropod-borne viral encephalitis |
| B05 | Measles |
| B15-B19 | Viral hepatitis |
| B20-B24 | Human immunodeficiency virus (HIV) disease |
| B50-B54 | Malaria |
| C00-C97 | Malignant neoplasms |
| D00-D48 | In situ neoplasms, benign neoplasms and neoplasms of uncertain or unknown behavior |
| D50-D64 | Anemias |
| E10-E14 | Diabetes mellitus |
| E40-E64 | Nutritional deficiencies |
| G00-G03 | Meningitis |
| G20-G21 | Parkinson's disease |
| G30 | Alzheimer's disease |
| I00-I09,I11,I13,I20-I51 | Diseases of heart |
| I10,I12 | Essential (primary) hypertension and hypertensive renal disease |
| I60-I69 | Cerebrovascular diseases |
| I70 | Atherosclerosis |
| I71 | Aortic aneurysm and dissection |
| J10-J18 | Influenza and pneumonia |
| J20-J21 | Acute bronchitis and bronchiolitis |
| J40-J47 | Chronic lower respiratory diseases |
| J60-J66,J68 | Pneumoconioses and chemical effects |
| J69 | Pneumonitis due to solids and liquids |
| K25-K28 | Peptic ulcer |
| K35-K38 | Diseases of appendix |
| K40-K46 | Hernia |
| K70,K73-K74 | Chronic liver disease and cirrhosis |
| K80-K82 | Cholelithiasis and other disorders of gallbladder |
| N00-N07,N17-N19,N25-N27 | Nephritis, nephrotic syndrome and nephrosis |
| N10-N12,N13.6,N15.1 | Infections of kidney |
| N40 | Hyperplasia of prostate |
| N70-N76 | Inflammatory diseases of female pelvic organs |
| O00-O99 | Pregnancy, childbirth and the puerperium |
| P00-P96 | Certain conditions originating in the perinatal period |
| Q00-Q99 | Congenital malformations, deformations and chromosomal abnormalities |
| V01-X59,Y85-Y86 | Accidents (unintentional injuries) |
| X60-X84,Y87.0 | Intentional self-harm (suicide) |
| X85-Y09,Y87.1 | Assault (homicide) |
| Y35,Y89.0 | Legal intervention |
| Y36,Y89.1 | Operations of war and their sequelae |
| Y40-Y84,Y88 | Complications of medical and surgical care |

## DEFINITIONS

The following is a glossary of technical terms used in this report:

**AGE-ADJUSTED DEATH RATE:** a rate calculated to adjust for differences in the distribution of ages in separate populations. The distribution of ages in a population can increase or decrease the likelihood of death in that population. When comparing mortality data from different populations, rates adjusted for differences in age distribution are used because age is the most significant characteristic related to disease and death. Age-adjusted death rates are relative frequencies, designed to be used only for comparisons of different populations. Unlike crude death rates, age-adjusted rates do not measure true rates of death in a population. They should not be compared directly to crude death rates.

**AGE-SPECIFIC BIRTH RATE:** a measure of the relative frequency of live births in a specific age group during a given period of time. Age-specific rates are calculated by dividing the number of live births occurring in a specified age group during one year by the estimated population of that age group in the specific year, then multiplying the quotient by 1,000. The rate is expressed as the number of live births per 1,000 population. Age-specific rates make valid comparisons among age groups possible, because age-specific rates limit their scope to narrow age ranges, thereby greatly reducing the effect that age might have on comparison of births across age groups.

**APGAR SCORE:** a composite measure of the physical health of an infant, assessed at one and five minutes after birth, and used to predict the infant's chances of survival. Five easily identifiable characteristics of the baby are assessed on a scale of 0 to 2, with 2 being optimum: heart rate, respiratory effort, muscle tone, reflex irritability, and color. The Apgar score is the sum of these scores, with a score of 7 or higher indicating that the infant is in good physical condition, and a score of 10 being perfect.

**BIRTH RATE (CRUDE BIRTH RATE):** a measure of the number of live births in a population during a given period of time. Birth rates are calculated by dividing the number of live births occurring in a given population during one year by the estimated population, then multiplying the quotient by 1,000. Rates are expressed as the number of live births per 1,000 population. Birth rates are affected by the number and age distribution of women of childbearing age. Because crude birth rates relate the number of live births to the total population in an area, without regard to the age or sex distribution of the population, they are useful in projecting population changes in the area.

**CESAREAN SECTION:** the surgical delivery of the newborn while the mother is under general anesthesia. A primary C-section refers to the first delivery by C-section. Cesarean section is usually the result of an abnormal delivery situation, once the mother has already gone into labor. The doctor may choose to perform a C-section because the infant is presenting in an abnormal and potentially harmful position, as in breech birth position. Medical emergencies can also require a C-section delivery. Such emergencies include fetal distress and hemorrhaging due to ruptured placenta. A repeat C-section is a Cesarean delivery in which a woman has previously delivered by a C-section. A vaginal birth after C-section is a vaginal delivery in which a woman has previously delivered by C-section.

**COMPARABILITY RATIO**: Measure of the degree of discontinuity between revisions of the International Classification of Diseases (ICD) for a particular cause of death. . Please see the *Death Data* section of these *Technical Notes*.

**CONGENITAL MALFORMATION:** a birth defect including a wide range of major and minor abnormalities that are noted at the time of birth. They can be the result of a wide range of factors including genetic disease, teratogens (drugs or other substances that cause fetal malformation), environmental factors, heredity, and nutrition. However, the causes of many birth defects are unknown.

**COVENANT MARRIAGE**: a marriage in which the couple agrees to complete premarital counseling from a clergyman of a religious sect or from a marriage counselor, and signs a notarized affidavit to the effect that the counselor has discussed with them the commitment to the marriage for life, the obligation to seek marital counseling if problems arise in the marriage, and the exclusive grounds for legal separation or divorce. These grounds include adultery by the other spouse; commission of a felony by the other spouse and sentence of imprisonment at hard labor or death; abandonment by the other spouse for one year; physical or sexual abuse of a spouse or of a child of either spouse; living separate and apart for two years; or habitual intemperance, cruel treatment, or severe ill treatment by the other spouse. The waiting period for divorce after legal separation is one year and six months if there is a minor child(ren) of the marriage, and one year in all other cases.

**DEATH RATE (CRUDE DEATH RATE):** a measure of the mortality in a population during a given period of time. Death rates are calculated by dividing the number of deaths occurring in a given population for that year during one year by the estimated population, then multiplying the quotient by 100,000. The rate is expressed as the number of deaths per 100,000 population. Crude death rates are useful for examining actual mortality in a geographic area or population because they describe the rate at which deaths occur in the total population, without regard to subpopulation differences in factors (such as age) that influence death. Caution must be used when comparing crude rates from different populations, because crude rates can be affected by differences in the composition of the two populations. For example, areas that attract retirees usually have higher crude death rates than areas with large numbers of young families. See *AGE-ADJUSTED DEATH RATE*.

**DIVORCE RATE:** a measure of divorces occurring in a population during a given period of time. Divorce rates are calculated by dividing the number of divorces occurring in a given population during one year by the estimated population, then multiplying the quotient by 1,000. The rate is expressed as the number of divorces per 1,000 population.

**EARLY ABORTION:** an abortion that is performed at or before 8 weeks gestation.

**FERTILITY RATE:** a rate that relates the total number of births (to women of all ages) in a population to the number of women most likely to bear children – those aged 15 through 44 years. The fertility rate is calculated by dividing the total number of live births occurring in a given population during one year by the estimated population of women aged 15 through 44 years, then multiplying the quotient by 1,000. The rate is expressed as the number of live births per 1,000 women aged 15 through 44 years. Fertility rates are useful for comparisons of fertility among age, race, and socioeconomic groups.

**FETAL DEATH:** death prior to the complete expulsion or extraction from its mother of a product of human conception that, after such expulsion or extraction, never breathes or shows any other evidence of life. (The term "fetal death" was defined on an all-inclusive basis to end confusion arising from use of such terms as stillbirth, abortion, and miscarriage.)

**FETAL MORTALITY RATE:** a measure of fetal deaths occurring in a population during a given period of time. Fetal mortality rates are calculated by dividing the number of fetal deaths in a given population during a given time period by the number of live

births plus fetal deaths occurring in the population during the same time period, then multiplying the quotient by 1,000. Fetal mortality rates are expressed as the number of fetal deaths per 1,000 live births plus fetal deaths.

**FIRST BIRTH RATE:** a measure of the number of first births to mothers in a particular age group during a given period of time. First birth rates are calculated by dividing the number of first births to mothers in a particular age group during one year by the total female population in that age group, then multiplying the quotient by 1,000. The rates are expressed as the number of births per 1,000 women in that age group. First birth rates are helpful in assessing changes over time in the age at which women begin bearing children.

**GESTATIONAL AGE- Birth data:** the interval between the first day of the mother's last normal menstrual period and the date of birth. Physicians use several different methods to estimate gestational age, including computing the interval between the first day of the mother's last normal menstrual period (LMP) and the date of birth, or determining a clinical estimate based on examination of the newborn. Standardized methods of measurement for determination of gestational age are difficult, especially among at-risk pregnancies in which minimal or no prenatal ascertainments are made. Louisiana Birth Certificates record both the "Date Last Normal Menses Began" and the "Clinical Estimate of Gestation." LMP is subject to error from imperfect maternal recall or misidentification of the last normal menstrual period because of postconception bleeding, delayed ovulation, or intervening early miscarriage. Therefore, the physician's clinical estimate of gestation is used to determine gestational age in this report.

**GESTATIONAL AGE - Fetal Death data:** the interval between the first day of the mother's last normal menstrual period and the date of delivery. Prior to 1995, "Clinical Estimate of Gestation" was not recorded on Louisiana's Fetal Death Certificate. Consequently, gestational ages reported for years prior to 1995 were calculated by subtracting the "Date Last Normal Menses Began" from the "Date of Delivery," as recorded on the Fetal Death Certificate. Beginning with the *1997 Louisiana Vital Statistics Report*, gestational ages reported for Louisiana fetal deaths occurring in 1995 or later are being derived by using the National Center for Health Statistics formula for calculation of gestational age for fetal deaths. This formula calculates gestational age by combining information collected in the "Date Last Normal Menses Began" and "Clinical Estimate of Gestation" sections of the Fetal Death Certificate.

**HEBDOMADAL DEATH:** a representation of deaths occurring to children under 7 days of age. See *PERINATAL MORTALITY*.

**HEBDOMADAL MORTALITY RATE:** a measure of deaths to infants under 7 days of age during a given period of time. Hebdomadal mortality rates are calculated by dividing the number of deaths to infants under 7 days of age occurring in a given population during one year by the number of live births occurring during that year, then multiplying the quotient by 1,000. The rate is expressed as the number of deaths to infants under age 7 days, per 1,000 live births.

**ICD-10:** the tenth revision of the International Statistical Classification of Diseases, Injuries, and Causes of Death. Please see the *Death Data* section of these *Technical Notes*.

**INDUCED TERMINATION OF PREGNANCY (INDUCED ABORTION):** the purposeful interruption of pregnancy with the intention other than to produce a liveborn infant or to remove a dead fetus, and which does not result in a live birth.

**INFANT MORTALITY:** a representation of deaths occurring in the first year of life. Most infant deaths are preventable. The risk of infant death is increased by giving birth at a very young age (<19 years) or older age (>40 years), leaving less than 2 years between births, or giving birth under conditions of poor maternal health or poor nutrition. Chemical toxins such as alcohol, drugs, and tobacco smoke also increase the risk. Most of these factors are associated with low birth weight. A newborn might be low birthweight because he/she has been compromised by one of the factors noted above, or simply because he/she was born too soon ("prematurely"). After the first month of life, poor infant nutrition, poor hygiene, and infectious disease all increase the risk of infant mortality.

**INFANT MORTALITY RATE:** a measure of deaths to infants under 1 year of age during a given period of time. Infant mortality rates are calculated by dividing the number of deaths to infants under 1 year of age occurring in a given population during one year by the number of live births occurring during that year, then multiplying the quotient by 1,000. The rate is expressed as the number of infant deaths per 1,000 live births.

**LATE ABORTION:** an abortion that is performed at or after 16 weeks gestation.

**LIVE BIRTH:** a birth that shows any sign of life after delivery, irrespective of the duration of pregnancy. Sign of life is considered the breathing or showing any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or the definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached.

**LOW BIRTHWEIGHT:** a live birth weighing less than 2,500 grams (5 pounds 8 ounces). The percent low birthweight is the number of these births in a population during a given time interval divided by the total number of live births reported in that population during the same time interval. Low birthweight usually results from a shortened gestational period, which often is linked to preventable factors such as lack of prenatal care, maternal smoking, use of alcohol and other drugs, and pregnancy before the age of 18 years. Other risk factors for low birthweight include low socioeconomic level, low maternal weight gain, low pregnancy weight, first births, female sex, short maternal stature, prior low birthweight births, maternal illness, fetal infection, and a variety of metabolic and genetic disorders. Low birthweight infants are more likely than normal weight infants to have brain damage, lung and liver disease, subnormal growth, developmental problems, mild learning disorders, attention disorders, and developmental impairments. *See VERY LOW BIRTHWEIGHT.*

**MALE/FEMALE BIRTH RATIO:** a measure of the number of males born for every thousand females born in a given time period. For example, a ratio of 1.036 means 1,036 males were born for every 1000 females born during a given time period.

**MARRIAGE RATE:** a measure of marriages occurring in a population during a given period of time. Marriage rates are calculated by dividing the number of marriages occurring in a given population during one year by the estimated population, then multiplying the quotient by 1,000. The rate is expressed as the number of marriages per 1,000 population. The marriage rate would be more representative of resident marriages if it were calculated using the number of marriages to *residents* of an area, rather than the number of marriages *occurring* in an area. Marriage counts by residence of bride and groom are difficult to quantify, however, because couples often choose to obtain marriage licenses and/or to marry outside of their residence areas.

**MATERNAL MORTALITY:** a representation of deaths of women due to complications of pregnancy and childbirth. Maternal mortality rates are calculated by dividing the number of maternal deaths in a given time period by the number of live births in that same time period, then multiplying the quotient by 100,000. Because maternal deaths occur infrequently, they are expressed as

deaths per 100,000 live births. Ideally, the rate should be calculated by dividing the number of deaths by the number of all pregnancies even those that do not result in a live birth. However, no system exists for gathering accurate and complete information regarding of miscarriages and abortions as an alternative the number of live births is used as an estimate of the number of pregnancies. These deaths may be related to previously existing maternal health problems, or they can occur from acute conditions arising during pregnancy, labor, delivery, and the period thereafter. Surveys indicate that some deaths caused by violent abuse sustained by women as a result of pregnancy are not coded as pregnancy-related deaths. Misidentification of cause of death is thought to result in under-reporting of maternal deaths.

**MODIFIED KESSNER INDEX:** the method used in Louisiana to measure adequacy of prenatal care. This index defines prenatal care as adequate if the first prenatal visit occurred in the first trimester of pregnancy, and if the total number of visits was appropriate to the gestational age of the baby at birth. However, because these measures assess neither the quality nor the content of prenatal care, they must be recognized only as estimates of the adequacy of prenatal care. For details of the modified Kessner Index, please refer to the “Birth Data” section in the TECHNICAL NOTES chapter.

**MORTALITY:** a representation of the incidence of death. In Louisiana, as in the nation, most deaths result from a few major causes, such as heart disease, cancer, and stroke. Many of us have the genetic potential to live to age 85 years, and some have the potential to live well beyond that age. Despite this potential, the average age at death in the United States is between 65 and 79 years. Many of the leading causes of death for people between the ages of 25 and 65 are preventable, wholly or in part, through changes in lifestyle. Cause-of-death data are readily available from death certificates, and this information can be used to identify areas where behavioral changes may be most effective in increasing length of life. Leading causes of death such as heart disease, cancer, unintentional injuries, stroke, and liver disease all have been associated with risk factors related to lifestyle.

**NEONATAL MORTALITY:** a representation of infant deaths occurring during the first 28 days of life. Deaths during this period are generally due to hereditary factors and factors affecting the mother before and during pregnancy. Three-quarters of these deaths are associated with low birthweight. The distinction between neonatal and postneonatal mortality has been blurred in recent years because of increased survival of premature infants due to advances in neonatology.

**NEONATAL MORTALITY RATE:** a measure of deaths occurring to infants under 28 days of age during a given period of time. Neonatal mortality rates are calculated by dividing the number of deaths occurring to infants under 28 days of age in a given population during one year by the number of live births occurring during that year, then multiplying the quotient by 1,000. The rate is expressed as the number of deaths to infants under age 28 days, per 1,000 live births.

**PERINATAL MORTALITY:** a representation of deaths of unborn fetuses after 20 weeks of gestation (stillbirths) and deaths within 7 days of birth. Perinatal mortality is influenced by conditions that affect the mother before and during pregnancy, and by health problems (genetic, chromosomal, infectious, etc.) that affect the infant.

**PERINATAL MORTALITY RATE:** a measure of stillbirths (fetal deaths) plus deaths to infants under 7 days of age during a given period of time. Perinatal mortality rates are calculated by dividing the number of fetal deaths plus deaths to infants under 7 days of age occurring in a given population during one year by the number of stillbirths plus live births occurring during that year, then multiplying the quotient by 1,000. The rate is expressed as the number of fetal deaths plus deaths to infants under age 7 days, per 1,000 stillbirths plus live births.

**POSTNEONATAL MORTALITY:** a representation of deaths occurring to infants aged 28 days through 364 days. Postneonatal mortality is influenced by environmental factors, such as nutrition, hygiene, and accidents. The distinction between neonatal and postneonatal mortality has been blurred in recent years because of increased survival of premature infants due to advances in neonatology.

**POSTNEONATAL MORTALITY RATE:** a measure of deaths occurring to infants aged 28 days through 364 days during a given period of time. Postneonatal mortality rates are calculated by dividing the number of deaths occurring to infants aged 28 days through 364 days in a given population during one year by the number of live births occurring during that year, then multiplying the quotient by 1,000. The rate is expressed as the number of deaths to infants aged 28 days through 364 days, per 1,000 live births.

**PRENATAL CARE:** health care, counseling, and related services provided during pregnancy to assure the best possible health for both mother and child. Care should start in the first trimester and continue throughout pregnancy. One major focus of such care is screening/monitoring to identify conditions that might threaten the mother or the child. A second major focus is counseling and guidance relative to diet, alcohol, tobacco, and other health concerns. Other services, for those who qualify, are social and financial counseling, WIC, and Medicaid.

**RATE:** a measure of vital events over time, commonly used to make comparisons among populations. A rate is the number of specific health events in a given time period divided by the average population during that same time period, then multiplied by a number such as 1,000 or 100,000 to standardize the calculation so it can be compared easily with rates for other groups. Multiplying by 100 results in a percentage of events per time period, which is the same as the number of people out of 100. Most rates, however, are given as the number out of 1,000 or 100,000. Rates can be used to measure changes in occurrence from one time period to another and to compare different geographical areas.

**RESIDENCE:** defined as that of the deceased for a death and as that of the mother for a birth or stillbirth. Births and deaths occurring in institutions in Louisiana are reallocated to the place of previous residence regardless of length of stay in the institution. All tables in this publication refer to resident events except as noted.

**RACE:** the category that is shown on the certificate. Tables that include race classification are tabulated by white, black, and other, where other includes all races not white or black. Beginning in 1989, birth data are presented by race of mother rather than inferred race of child.

**SPONTANEOUS FETAL DEATH:** a fetal death that is not an induced termination of pregnancy. Spontaneous fetal deaths of 20 weeks or more duration of pregnancy, or with a weight of 350 grams or more, must be reported on a Fetal Death (Stillbirth) certificate.

**TEEN BIRTH:** a birth to a women under the age of 20 years.

**UNDERLYING CAUSE OF DEATH:** the disease or injury that initiated the sequence of events leading to death.

**VERY LOW BIRTHWEIGHT:** a live birth weighing less than 1,500 grams (3 pounds 5 ounces). The percent very low birthweight is the number of these births in a population during a given time interval, divided by the total number of live births with known birthweight reported in that population during the same time interval. Very low birthweight infants are at greater risk of mortality and long-term disability than higher weight infants. *See LOW BIRTHWEIGHT.*

## CALCULATION OF RATES AND RATIOS*

**BIRTH RATE =** $\frac{\text{number of live births}}{\text{estimated population}} \times 1{,}000$

**FERTILITY RATE =** $\frac{\text{number of live births}}{\text{estimated female population 15 - 44 years old}} \times 1{,}000$

**AGE-SPECIFIC FERTILITY RATE =** $\frac{\text{number of live births to women in specific age group}}{\text{estimated female population in that specific age group}} \times 1{,}000$

**TOTAL FERTILITY RATE** =** sum of the age specific fertility rates (in 5-year age groups) multiplied by 5

**STILLBIRTH RATIO =** $\frac{\text{number of reportable stillbirths}}{\text{number of live births}} \times$ **1,000** (*or* **100,000,** *as specified)*

**DEATH RATE =** $\frac{\text{number of deaths}}{\text{estimated population}} \times$ **1,000** (*or* **100,000,** *as specified)*

**AGE-SPECIFIC DEATH RATE =** $\frac{\text{number of deaths in specific age group}}{\text{estimated population in that specific age group}} \times$ **1,000** *(or* **100,000,** *as specified)*

*All rates and ratios in this report are per calendar year.

**If divided by 1,000, the total fertility rate is an approximation of completed family size per woman (if throughout their reproductive period, women were to experience the same age specific birthrates that were observed in the childbearing population in the current year).

| | | | |
|---|---|---|---|
| **AGE-ADJUSTED DEATH RATE= (Direct Method)** | **total number of expected deaths in a standard population (if the persons in this population had experienced the same age specific death rates as population being adjusted).**<br>**----------**<br>**total standard population** | **X** | **1,000** *(or* **100,000,** *as specified)* |
| **INFANT MORTALITY RATE=** | **number of deaths under 1 year of age**<br>**----------**<br>**total number of live births** | **X** | **1,000** *(or* **100,000,** *as specified)* |
| **HEBDOMADAL MORTALITY RATE=** | **number of deaths under 7 days of age**<br>**----------**<br>**total number of live births** | **X** | **1,000** |
| **NEONATAL MORTALITY RATE=** | **number of deaths under 28 days old**<br>**----------**<br>**total number of live births** | **X** | **1,000** |
| **PERINATAL MORTALITY RATE=** | **stillbirths + deaths under 7 days old**<br>**----------**<br>**total number of live births + stillbirths** | **X** | **1,000** |
| **MATERNAL MORTALITY RATE***=** | **number of deaths due to Complications of Pregnancy, Childbirth, and Puerperium**<br>**----------**<br>**total number of live births** | **X** | **100,000** |

***In reports prior to 1972 the Maternal Death rate was expressed "per 10,000 live births".